



# NASA ASTROBIOLOGY INSTITUTE ANNUAL REPORT YEAR [July 2002 - June 2003]



## Project Report: Europa Focus Group

<b>Lead Team:</b>	<b>Europa</b>
<b>Project Title:</b>	<b>Europa Focus Group</b>
<b>Project Investigator:</b>	<b>Ronald Greeley</b> [ <a href="#">view project member list</a> ]

### Project Progress

The Europa Focus Group (EFG) was organized to foster research dealing with the Jupiter moon, Europa, and its potential as a habitat for past or present life. In addition, the EFG considers the principal science objectives for future exploration of Europa by spacecraft, including the critical measurements needed to understand its astrobiological significance.

Membership in the EFG includes planetary scientists, biologists, terrestrial sea-ice experts, oceanographers, and space science technologists. The EFG is open to all interested members of the scientific community and functions primarily through open workshops. The workshops provide a venue in which participants can share relevant research results and establish collaborations that might not otherwise occur. During the workshops the participants also address specific issues important for the exploration of Europa, such as defining instruments to fly on future missions.

Two workshops were held in this reporting period. At the September 2002 workshop, the scientific strategy for the exploration of Europa was discussed and the objectives for a landed mission were formulated. Specific investigations and measurements were identified and prioritized. The results were then presented to the National Academy of Sciences (National Research Council (NRC)) study team responsible for formulating the exploration strategy for the outer planet satellites in the coming decade. The results from the EFG were incorporated into the NRC final report.

The Arctic Ice Field Conference, held in Barrow, Alaska, in April 2003, was organized to provide participants with the opportunity to observe sea-ice first-hand in order to have a better understanding of the differences and similarities of a terrestrial ice province compared with Europa. Through an aerial reconnaissance and ground excursions, participants should gain a better appreciation of the physics, chemistry, and biology of sea ice.

### Roadmap Objectives

- **[Objective No. 1.1: Models of formation and evolution of habitable](#)**

[planets](#)

- **[Objective No. 2.2: Outer Solar System exploration](#)**

#### Mission Involvement

<b>Mission Class*</b>	<b>Mission Name (for class 1 or 2) OR Concept (for class 3)</b>	<b>Type of Involvement**</b>
1	Galileo	Member of the science flight team
2	JIMO	Co-chairman, NASA Scientific Definition Team
3	Europa Lander	Science definition

\* Mission Class: Select 1 of 3 Mission Class types below to classify your project:

1. Now flying OR Funded & in development (e.g., Mars Odyssey, MER 2003, Kepler)
2. Named mission under study / in development, but not yet funded (e.g., TPF, Mars Lander 2009)
3. Long-lead future mission / societal issues (e.g., far-future Mars or Europa, biomarkers, life definition)

\*\* Type of Involvement = Role / Relationship with Mission

Specify one (or more) of the following: PI, Co-I, Science Team member, planning support, data analysis, background research, instrument/payload development, research or analysis techniques, other (specify).

The Europa Focus Group has discussed the science goals, objectives, and investigations for future missions to Europa. With the cancellation of the Europa Orbiter last year, there is a window of opportunity to revisit the overall strategy for exploration. In part, the plans for Solar System exploration, including Europa, will be guided by the "Decadal Survey" which was conducted by the National Research Council; its report, along with recommendations, have been released. Three members of the EFG are on the NRC panel (2 on the steering group, 1 on the large satellites panel). Results from the EFG discussions for the science strategy for Europa have been input to the NRC panel as part of the community involvement in planning for future exploration.

#### Field Expeditions

<b>Field Trip Name:</b> Arctic Ice Field Conference	
<b>Start Date:</b> 22 April 2003	<b>End Date:</b> 27 April 2003
<b>Continent:</b> North America	<b>Country:</b> USA
<b>State/Province:</b> Alaska	<b>Nearest City/Town:</b> Barrow, AK

<b><i>Latitude:</i></b>	<b><i>Longitude:</i></b>
<b><i>Name of site(cave, mine, e.g.):</i></b>	<b><i>Keywords:</i></b>
<b><i>Description of Work:</i></b> Description of work: Examination of sea ice	
<b><i>Members Involved:</i></b> Ronald Greeley	